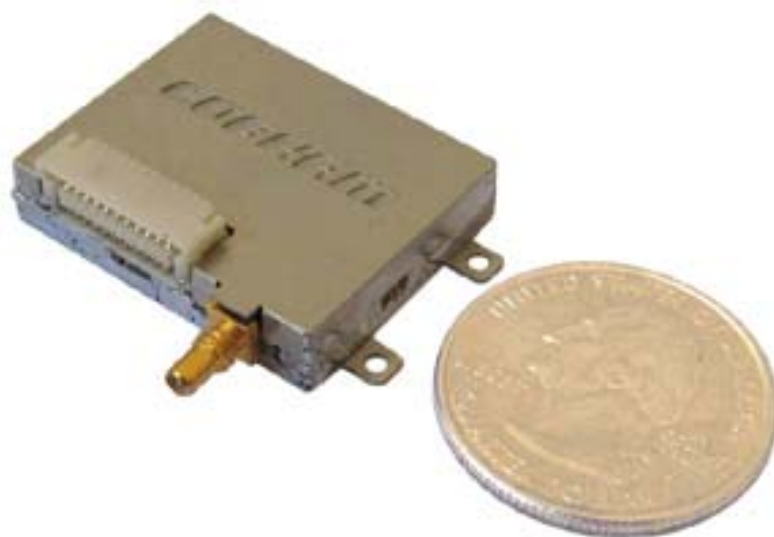


The most important thing we build is trust.

## Wireless Control Module (WCM)



## REVISION HISTORY

Version	Date	Author	Comments
X1	09-21-09	Doug Freeman	Initial release.

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## 1.0 Acronyms

This section lists and describes the various acronyms used in this document.

<b>Name</b>	<b>Meaning</b>
ISM	Industrial, Scientific, and Medical
VMT	VETA Miniature Transmitter
WCM	Wireless Control Module
WRCU	Wireless Remote Control Unit

## 2.0 Introduction

The Wireless Control Module (WCM) is a miniature microprocessor controlled transceiver intended for monitoring and controlling a remote piece of electronic equipment. It is small, lightweight, and has low power consumption. A metal housing encloses the unit to reduce unwanted RF emissions.

The WCM is only half of the control system. It communicates with a local controller.

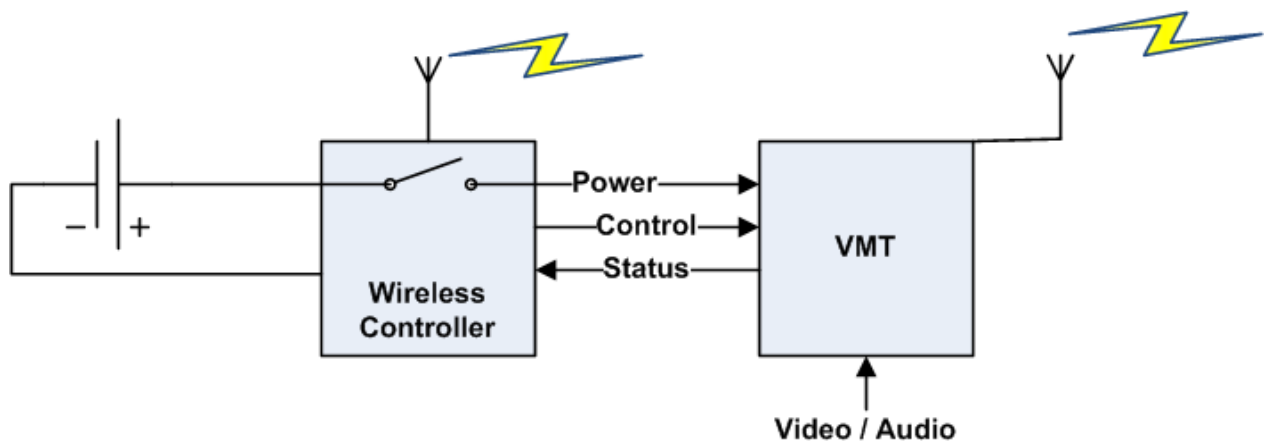
This manual will provide basic information on the operation of the WCM in combination with our VETA Miniature Transmitter (VMT).

The system, at its most basic level, is a remote transmitter managed by a local controller using a wireless link.



**Figure 1 - System Basic Function**

The WCM provides power to the VMT using a remotely commanded switch. It can control and read status of the VMT. It also monitors its temperature and the battery supply voltage. The WCM does not transmit RF unless a controller at the correct frequency and using the WCM's preprogrammed address queries it.



**Figure 2 - VMT / WCM Interface**

The local controller can consist of a Wireless Remote Control Unit (WRCU) (100-M0125) or a USB Wireless Control Module (UWCM) (100-M0126).

## 2.1 Key System Features

- Provides Remote
  - DC PWR Control
  - Battery/PWR Monitoring
  - RS-232 Communications
  - Temperature Monitoring
- Hard to Detect
  - Listen before TX
  - System stays quiet until commanded to respond
  - System has low emissions
- Low Power Consumption
- The radio link has a CRC check and automatic retransmission for error free operation.

## 2.2 Warranty

GMS offers a 12-month standard product warranty. During this period, should the customer encounter a fault with the equipment we recommend the following course of action:

- If fault persists, call our support line and report the fault. If fault persists and you are informed to return the product, please obtain an RMA number from the GMS support department or website and ship the equipment with the RMA number displayed and a description of the fault. Please email the support section the airway bill/consignment number for tracking purposes.

Depending on the nature of the fault, **GMS** will endeavor to repair the equipment and return it to the customer within 14 days of the item arriving at our workshops. Obviously, it is impossible to cater for all types of faults and to manage 100% replacement part availability, and delays are sometimes inevitable.

Please contact **GMS** for details of packages that can be tailored to meet your individual needs, whether they are service availability, technical training, local geographic support, or dedicated spares holdings.

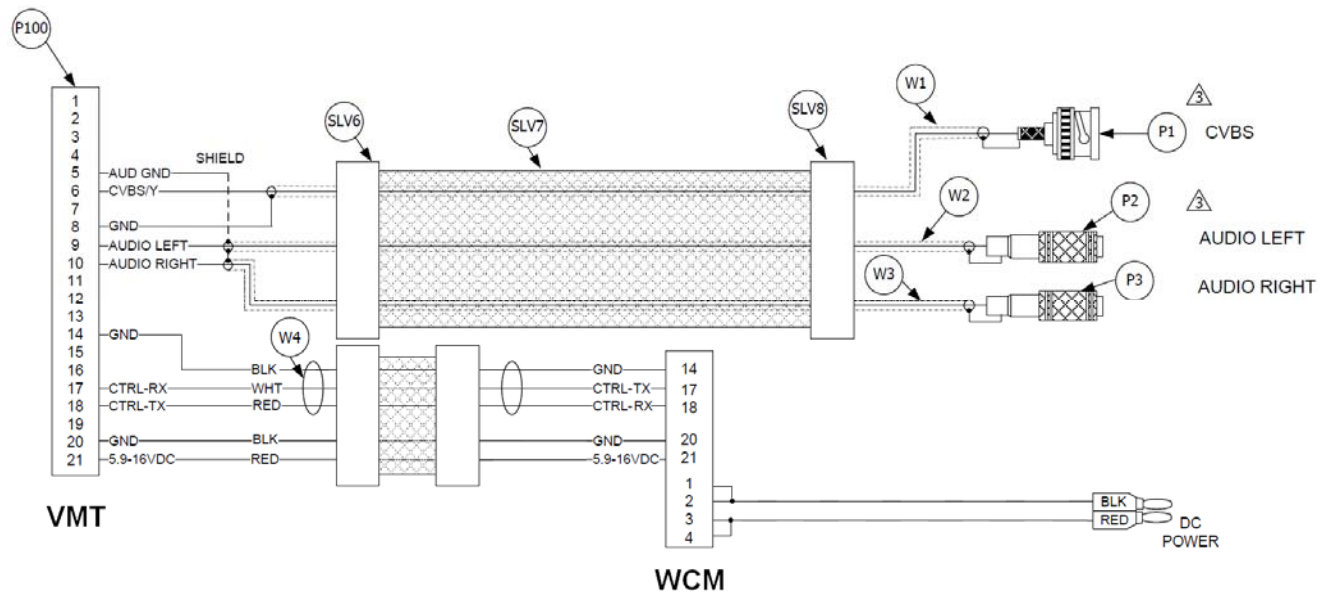
## 2.3 Safe Operating Procedures

- Ensure that the power supply arrangements are adequate to meet the requirements of the product.
- Operate within the environmental limits specified for the product.
- Only authorized, trained personnel should open the product. There are no functions that require the User to access the product's interior.
- Do not operate without an antenna.
- Do not operate with the controller antenna closer than 6 feet from the WCM antenna.

## 3.0 General System Information

### 3.1 Getting Started

The WCM and VMT must be connected using the Power and Signal Cable 780-C0466 (Figure 3). Note that the connectors for the WCM and VMT are the same. It is possible to connect this cable incorrectly. Figure 4 shows a detail of the connection. Notice that the video and audio cables go directly to the VMT and that the two DC power wires go directly to the WCM.



**Figure 3 - Wiring Diagram for Power and Signal Cable 780-C0466**



**Figure 4 - Detail of WCM and VMT Connections**

The WCM shown in Figure 4 has an optional antenna directly attached to the printed circuit board and therefore cannot be removed. The standard WCM uses a SSMC-M connector. It can be mated with a variety of antennas including a body worn dual patch and a miniature dipole antenna.

The WCM/VMT assembly can be powered with an 8 to 16 VDC source. 12 VDC is nominal. Observe the polarity of the power connections. **The WCM will be damaged if the polarity is reversed.**

## 4.0 Hardware Overview

### 4.1 Interface Connectors

#### 4.1.1 RF Out

SSMC - M

#### 4.1.2 I/O

JST Plug	Signal
1	-VBAT
2	-VBAT
3	+VBAT
4	+VBAT
5	USB GND
7	USB N
8	USB P
9	GND
14	GND
15	RS232 TX1
16	RS232 RX1
17	RS232 TX2
18	RS232 RX2
20	GND
21	Switched +VBAT

## 5.0 Software Overview

Control software is discussed in the associated controller manual .The local controller can consist of a Wireless Remote Control Unit (WRCU) ( 100-M0125) or a USB Wireless Control Module (UWCM) (100-M0126).

## 6.0 Specifications

### 6.1 RF Related

Operating Frequency: 902-928 MHz (ISM band)

Frequency Tuning Resolution: 184.570 kHz

# of RF channels: 140

Modulation type: Frequency Hopping w/ Gaussian Frequency Shift Keying (GFSK)

Forward Error Correction

RF Channel Data Rate: 500 Kbps

Programmable output power from -30 dBm to +10 dBm

### 6.1 Switched DC Power to External Devices

Number of DC Outputs: 1

DC PWR switching limit: Continuous load current of 2.3 A

### 6.2 Internal Monitoring

DC Voltage (Used for Battery)

Internal Temperature

### 6.3 Connectors

J101 RF Connector: SSMC



J100 I/O Connector: 21 position SHLV style JST SM21B-SHLVS-G-TB (mates with SHLVP-21V-S-1 using contacts SSL-003GA1-P0.2)

## 6.4 Serial Communications

USB: Qty: 1 (Max data rate 12 Mbps)

RS-232C: Qty: 2

### Serial Port Baud rate Settings

2400  
4800  
9600  
14400  
19200  
28800  
38400  
57600  
76800  
115200  
230400

## 6.5 User Signals

JST Plug	Signal
1	-VBAT
2	-VBAT
3	+VBAT
4	+VBAT
5	USB GND
7	USB N
8	USB P
9	GND
14	GND
15	RS232 TX1
16	RS232 RX1
17	RS232 TX2
18	RS232 RX2
20	GND
21	Switched +VBAT

## 6.6 General

Voltage	+8 to 18 V DC
Current	45 mA
Temperature	-10 C to 70 C Degrees
Humidity	0 to 95% non-condensing
Size	1.17" x 0.91" x 0.23" / 2.97 cm x 2.3 cm x 0.58 cm
Weight	less than 0.36 oz / 10 g